

# Insectary Notes

## SEPTEMBER/OCTOBER 2007

### Editor's Overview

Times flies when you're busy and right now Fall is flying by. The overwintering survey for the spruce budworm is underway. Using the data from the pheromone trap survey, IPM crews are collecting branch samples from the trap locations that were positive for spruce budworm moths.

Pest Detection Officers and IPM staff are also working on the whitemarked tussock moth egg mass survey. We had reports from the Eastern Region that the whitemarked tussock population was showing signs of virus infection. Let's hope the egg mass survey will confirm that.

Next on the list is the overwintering survey for the hemlock looper. Anyone who gets into forest entomology as a career so that they can take the fall and winter off will be disappointed!

In this issue we have reviewed the spruce budworm life cycle (page 2).

Gina has been getting some calls on the vast quantities of ladybird beetles. She has some hints on dealing with a ladybird beetle invasion (page 3).

Jim, Mike, and Bob put together an article on the spruce budworm pheromone trap survey. To see where spruce budworm moths were caught, check out the map on page 5.

Jeff has provided an update on the tick survey (page 6) as well as some information on mosquitos overwintering in houses (page 4.)

Keith has been looking into the balsam gall midge situation and has provided some information on page 6.

'Til next time

Jacqui

Jacqui Gordon  
Editor

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### Say What and Quotes . . .

I told the doctor I broke my leg in two places. He told me to quit going to those places. - Henny Youngman

A computer once beat me at chess, but it was no match for me at kick boxing. - Unk.

#### News Flash

Energizer Bunny arrested, charged with battery.

Everyone has photographic memory; some just don't have the film. - Unk.

Time's fun when you're having flies. - Kermit the Frog

Home computers are being called upon to perform many new functions, including the consumption of homework formerly eaten by the dog. - Doug Larson

Never be afraid to try something new. Remember, amateurs built the ark. Professionals built the Titanic. - Anon.

Every morning, I get up and look through the 'Forbes' list of the richest people in America. If I'm not there, I go to work. - Robert Orben

If all else fails, immortality can always be assured by spectacular error. - John Kenneth Galbraith

Trouble defies the law of gravity. It's easier to pick up than to drop. - Johathan Raban

Remember that nobody will ever get ahead of you as long as he is kicking you in the seat of the pants. - Walter Winchell

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## Insect Focus

### Spruce Budworm

*Choristoneura fumiferana* (Clem.)

It's been awhile since we went over the life and times of the spruce budworm. Many experts predict an outbreak in the Maritimes will be sooner rather than later because populations are already increasing in Ontario and Quebec. So it's a good time to become reacquainted with one of the most destructive insect pests of softwood trees.

### What it Eats

The larvae of the spruce budworm feed on the foliage of balsam fir, spruce, larch and hemlock. The preferred host is balsam fir; the others can be attacked during a severe infestation.

### Life History

The adult moths fly, mate, and lay eggs in mid to late July. The adult moth is grayish with dark brown and pale markings. The female moth lays eggs on the underside of the needle. After about two weeks, the eggs hatch and the small larvae crawl into bark crevices on the branches. They spin a cocoon-like shelter (hibernaculum), grow to the second larval instar, and settle in for the winter. We call our overwintering spruce budworm survey the L-2 Survey because we are looking for the second larval instar.

As the buds begin to swell in the spring, the larvae emerge from their overwintering sites. They feed on the buds and mine the needles. As the larvae grow they continue to feed on the new growth. If populations are high, they will feed on the old growth and bark near the branch tips.

The larvae go through six growth stages (instars.) The first instar, about 2 millimeters long, is yellowish green with a light to medium-brown head. The second instar is yellow with a dark brown or black head. During the next four in-stars, the body of the larva changes from a pale yellow to a dark brown with light-colored spots along the back. In the sixth instar, the larva is about 2.5 centimeters long and the head is dark brown or shiny black.

In mid to late June, the larva finishes feeding and forms a pupa. Pupation lasts about 10 days. The adult moths emerge from the pupa and the cycle starts again.

### Damage

The feeding causes defoliation and after 2-3 years of heavy defoliation, tree mortality can occur. Where the tree does not die completely, branch tips and terminal shoots may be destroyed.

Spruce budworm feeding can also negatively affect the appearance of Christmas trees.

### References

Spruce Budworm. 2006. Natural Resources Canada. PEST Notes No.1.

URL: <http://cfs.nrcan.gc.ca/news/455>

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URL: <http://cfs.nrcan.gc.ca/index/sprucebudworm>

Kuceral, D.R. and Orr, P.W. Spruce Budworm in the Eastern United States. Forest Insect and Disease Leaflet 160. US Department of Agriculture, Forest Service.

URL:  
<http://na.fs.fed.us/spfo/pubs/fidls/sbw/budworm.htm>

### Insectary Notes

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## **Provincial Entomologist's Overview**

### **What's the Buzz?**

"Ladybug, ladybug, fly away home, your house is on fire, your children do roam. Except little Nan, who sits in a pan, weaving gold laces as fast as she can." This time of year it's not just their houses that are on fire, these little ladies have homeowners' tempers flaring across the province.

Ladybird beetles, also known as ladybugs or lady beetles, are well known for being beneficial; serving as aphid eating machines. However, one ladybird beetle species, the multicolored Asian lady beetle (*Harmonia axyridis*) has emerged as a seasonal pest in and around the home. There's gotta be one rotten apple in every bunch! Calls from concerned home owners have flooded my desk, wondering how they can rid themselves of these spotted invaders.

In the fall, ladybird beetles begin looking for overwintering sites. Unlike our native species, the multicolored Asian lady beetle seeks overwintering sites in and around buildings and homes; preferring to congregate on sunny, south and southwest facing walls.

When it comes to these beetles, your best offense is a good defence. These beetles, not to mention many other insects, gain access indoors through gaps as small as 3mm, in and around doors, windows, siding, attic vents etc. In order to keep them outside, caulk and seal any openings through which they might gain entry.

Multicolored Asian lady beetles don't cause any structural damage and once inside, the use of insecticides isn't recommended. Crushing or smashing ladybird beetles is also not recommended since their body fluids have a foul odour and can permanently stain walls, curtains, carpets, etc. Vacuuming is a quick and easy way to remove large numbers of beetles from your home. Just remember to empty the bag soon after you've finished, since the beetles will die in a few days and, if not removed, your vacuum will smell like multicolored Asian lady beetle every time it's used.

'Til Next Time,  
**Gina**  
 Gina Penny  
 Provincial Entomologist

## **Bits and Pieces**

### **New Arrival**



Congratulations to Jeff and Kathy Ogden, happy parents of a bouncing baby boy. Noah Ogden made his appearance on September 26<sup>th</sup>. He weighed close to 7 pounds and, if this proud papa is to be believed, he has good, healthy lungs. Noah and Kathy visited Shubie on "Take Your Child to Work Day." Rumour has it, he has already been bird watching and that his room is decorated in equal numbers of bugs AND dinosaurs. Best Wishes from all of us at Shubie.

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### **Most Unwanted List**

Asian Lady Beetles

### **Dishonourable Mention**

**(Not insects but still unwanted)**

Blacklegged Ticks  
 Millipedes

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### **Kids in the Forest**

Jacqui Gordon

In September, IPM staff participated in four Kids in the Forest Field Days. Three were in connection with the Woodlot Owner of the Year Field Days and one was in recognition of National Forest Week. All were well-appreciated by the students and teachers and provided a wide variety of topics related to our forests. Hats off to those who worked hard to put these valuable events together!

## **Bits and Pieces continued**

### **West Nile Virus in the Bathroom???**

Jeff Ogden

Well it is certainly not something you'll pickup from the toilet seat, but in some places it could happen . . . just not likely here in Nova Scotia. As we know West Nile virus (WNV) is transmitted by certain species of mosquito. One of the main vectors of the virus is the Northern House mosquito, *Culex pipiens* which commonly overwinter in attics, caves, basements and yes, bathrooms in NS. In areas where WNV is established *C. pipiens* has even been studied as it overwintered in the sewer systems of larger cities (entomology is not always a glamourous job.) Lately I have a few concerned home owners wondering what mosquitoes were doing out so late in the season and in their homes. These are without a doubt *C. pipiens*, however in NS we have not had any sign of any WNV activity for a few years now so our risk of contracting any mosquito born disease while one enjoys their morning "read" is not very likely.

### **Neologisms**

Neologisms are alternate meanings for common words.

**Arbitrator** \ar'-bi-tray-ter\:  
A cook that leaves Arby's to work at McDonald's.

**Avoidable** \uh-voy'-duh-buh'l\:  
What a bullfighter tries to do.

**Counterfeeters** \kown-ter-fit-ers\:  
Workers who put together kitchen cabinets

**Eyedropper** \i'-drop-ur\:  
A clumsy ophthalmologist.

**Subdued** \sub-dood'\:  
Like, a guy, like, works on one of those, like, submarines, man.

**Sudafed** \sood'-a-fed\:  
Bringing litigation against a government official.

### **Anecdotes**

I found an interesting website "Famous People. Funny Stories" (Anecdotage.com). Here are some highlights . . .

### **Eureka Moment**

One day, as he lay on his bed watching a fly buzzing through the air, Rene Descartes suddenly realized that its position at any moment could be perfectly described by three numbers representing its distance along each of three intersecting, mutually perpendicular axes (corresponding to the lines formed by the intersection of the room's walls in a corner). This insight formed the basis of the Cartesian coordinate system - one of Descartes's main contributions to the development of mathematics.

### **Bee Metric**

The French physicist Rene-Antoine de Reaumur was so impressed by the geometrical perfection of the hexagonal cells in a beehive that he once suggested adopting the honeycomb as the basis for a system of measurement

### **Swat Team**

One day in 1905, Dr. Samuel J. Crumbine of the Kansas State Board of Health found himself watching a baseball game in Topeka, Kansas while pondering how to reduce the spread of typhoid fever by flies during hot Kansas summers. With the score tied and a man on third base in the bottom of the eighth inning, Topeka fans began screaming "Sacrifice fly! Sacrifice fly!" and "Swat the ball! Swat the ball!" - and Crumbine suddenly had an inspiration: "Swat the fly!" [ Though he popularized the idea, Crumbine did not actually invent the fly swatter. A schoolteacher named Frank Rose read his article (entitled "Swat the Fly") in an issue of Fly Bulletin and made the first swatter from a yardstick and some wire screen. ]

### **Niels Bohr: Horse Sense?**

One day a visitor to Niels Bohr's country cottage noticed a horseshoe hanging on a wall and teased the eminent physicist about his apparent superstition. "Can it be," he asked, "that you, of all people, believe it will bring you luck?" "Of course not," Bohr replied, "but I understand it brings you luck whether you believe it or not."

## Project Updates

### Spruce Budworm Pheromone Traps

Jim Rudderham, Mike LeBlanc, Bob Guscott

The spruce budworm pheromone trap survey is complete for this season. Once again thanks to all who helped place the traps and gather the information.

The next step is to use this data to determine where to collect the spruce budworm overwintering survey (L-2) samples. At each positive trap, IPM staff will collect a maximum of five samples. Collections have already begun and the samples will be processed later this year.

How do these catches relate to previous years' catches?

TABLE 1. COMPARISON OF SBW TRAP CATCHES, 2006 AND 2007.

	# Positive Traps	# Negative Traps (zero)
2006	26	124
2007	59	91

The number of moths caught in the traps is still low (maximum catch of 11 moths in 1 trap), but the number of traps that caught moths has increased (the number of positive traps.) For this reason, we have increased our L-2 samples so that we can accurately locate any spruce budworm populations.

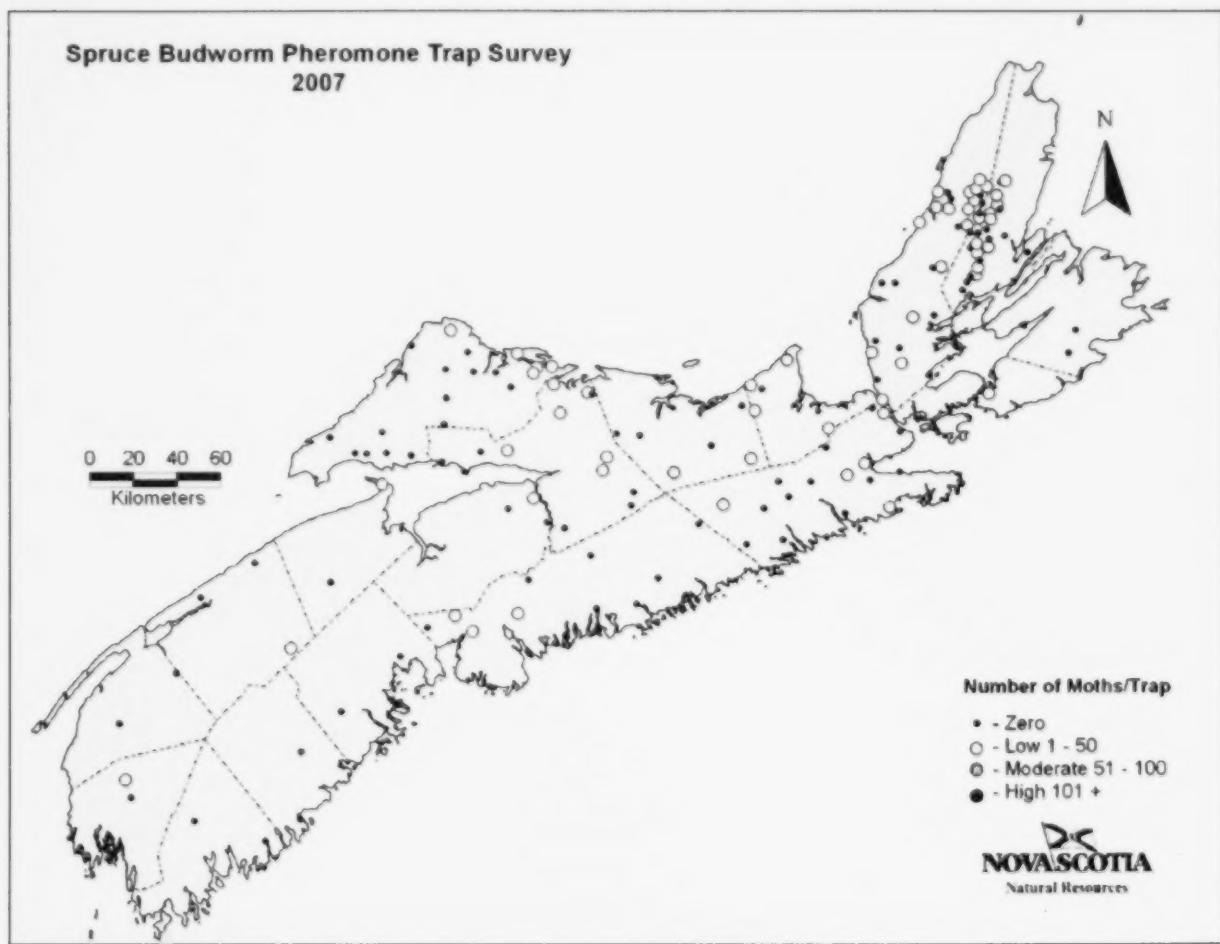


Figure 1. Spruce budworm pheromone trap survey results, 2007.

The information on this map may have come from a variety of government and non government sources and is subject to change without notice. The Nova Scotia department of Natural Resources accepts no liability for errors, deficiencies, or faults on this map.

**Project Updates continued****The Unmitigated Gall of Some Insects**

(a galling account by Jacqui Gordon as told to by Keith Moore)

Thanks to the keen eyes of our Pest Detection Officers and Christmas Tree Contacts, I was alerted to a galling situation in Antigonish and Guysborough Counties. Some tree growers are experiencing an abundance of balsam gall midge. This insect causes small growths on the needles which can lead to defoliation and early needle drop if the trees are harvested.

But, as usual with insects, there's more to the story than just needles with galls. When I dissected the gall (collected in the Lochiel Lake area), I found few larvae that make the galls and a lot of larvae that parasitize the galls (lobster orange in colour). You can skip your morning crossword puzzle and try to wrap your brain around this one.

The larvae of the parasitic midge feeds on the starch produced by the swelling galled needles . . . but it can't make its own gall so it must depend on the balsam gall midge larvae to start the gall. The female parasitic midge lays her eggs next to the balsam gall midge larva. As the gall is formed, the parasitic egg is enclosed in the gall along with the gall maker larva. Eventually the parasitic larva crowds out the gall maker and kills it. Enough parasitized galls will cause the gall maker population to collapse. (Another But !!!!). . . it takes 2 to 3 years before the parasite population catches up and decreases the gall maker population.

Since the balsam gall midge adults are not strong fliers, outbreaks are slow to spread and can be limited to 1 or 2 trees. Some of the more experienced Christmas Tree growers tell me that they find and treat these trees because they are the starting point for the gall midge to spread through the lot . . . Sounds good to me!

So, what does this mean for next year? I suspect we are in the 2<sup>nd</sup> year of an outbreak buildup. This means 1 more season before the population collapse. The collapse is dependent on parasite population and the timing of bud flush in the spring. Studies indicate that the later flushing trees will be less infected by the gall midge.

The good news is that the parasitic midge is out there doing its best to control the balsam gall midge. We will need to monitor the flying gall midge adults at bud break for a 2-week period next spring to determine what our next move will be.

**Reference**

Osgood, E.A., Bradbury, R.L., and Drummond, F.A. August 1992. The Balsam Gall Midge - An Economic Pest of Balsam Fir Trees. Maine Agricultural and Forest Experiment Station, Technical Bulletin 151, the University of Maine.

**2007 Tick Survey**

Jeff Ogden

Work has just concluded on our fourth year of checking hunter killed deer in Lunenburg County. Numbers of deer examined over the six-day study period are down this year compared to previous years and it is unclear if that is due to poor hunter success, reduction in the number of actual hunters or loss of hunters registering deer at the check station due to the on-line registry. The early results do show a continuing expansion of the tick population further afield into Lunenburg County, but with the bulk of the ticks remaining in the Garden Lots, Blue Rocks areas. Plans are currently being made to begin our tick control study with the deer bait stations being placed into the field this fall.

**Fall Survey Questions**

Jim Rudderham

For those of you who participated in the Fall Survey in past years, you may recall we made some changes at the beginning of this survey season. The Fall Survey has been replaced by a more intensive whitemarked tussock egg mass search. I sent out a list of locations for the survey. The change is that no branches will be collected at the point, only the records of how many WMTM egg masses were found.

Next on the calendar are the Hemlock Looper traps. You can collect and send the traps and catches to the lab any time now.

**Reminder**

As noted in the last issue, a paper copy of the newsletter will no longer be available as of 1 April 2008. Please send in your email addresses so we can continue to provide you with information.

